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CONSUMER REACTION TO THE FORT LEWIS CAFE  
SYSTEM: A FOLLOW UP

Laurence G. Branch, et al

Army Natick Laboratories  
Natick, Massachusetts

March 1973

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TECHNICAL REPORT

TR 73-36-PR

# CONSUMER REACTION TO THE FORT LEWIS CAFE SYSTEM:

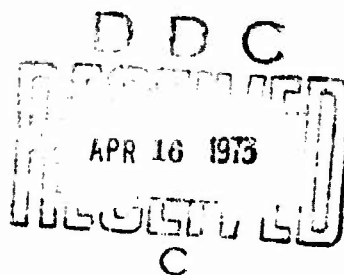
A Follow-Up

by

Laurence G. Branch

and

Herbert L. Meiselman



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March 1973

UNITED STATES ARMY  
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Pioneering Research Laboratory

**Technical Report**

**TR-73-36-PH**

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<p>A follow-up sample of 642 respondents was interviewed to determine the consumer reactions to the CAFe System at Fort Lewis subsequent to the assumption of responsibility by Fort Lewis personnel and to the passage of time. The data demonstrated essentially the same overall pattern of consumer evaluations (the Specialty CAFe was rated highest, followed by the Short Order CAFe which was not significantly different from the former, followed by the other four facilities which were not significantly different from each other). There was, however, a statistically significant decrease in the hedonic rating of the overall meals during the follow-up period, but the decrease was slight (0.29 of a scale point) and rival hypotheses other than a decrease in the quality of the food or service itself are plausible. In summary, the CAFe System was still highly received by the consumers.</p>			

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## FOREWORD

In 1969 the DOD Facilities and Equipment Planning Board accomplished an on-site survey of military garrison feeding facilities in the United States. As a result of this survey, this Board created, with DOD and Army approval, a project to study, define, and then implement a new, modern food service system at Fort Lewis, Washington. The objectives were to improve performance and reduce costs. This system would then serve as a model for all military services.

In 1970 the DOD Food Research Development Test and Engineering program was established at Natick Laboratories. Included within this program were an increased emphasis on garrison food service systems and a requirement to apply a "total systems concept" in the design of new military food service systems. This requirement was initially addressed by the Operations Research and Systems Analysis Office at NLABS, and resulted in a rather unique but logical merger of the R&D systems study effort with the DOD and Army project to study and then build a modern food service system at Fort Lewis. The purpose of this project was to develop a modern food service concept which would increase customer satisfaction and reduce operating costs, in that order of importance.

Due to the extent and complexity of the information and data which have been developed, this report is only one of several which have been published concerning the overall project. A list of these reports is provided below.

NLABS Report Number	Title
72-37-OR&SA	A System Evaluation of Army Garrison Feeding at Fort Lewis, Washington
72-43-PR	The 1971 Fort Lewis Food Preference Survey
72-44-PR	Fort Lewis Dining Facilities Consumer Survey
72-46-FL	Application of Food Technology and Engineering to Central Preparation

<b>NLABS Report Number</b>	<b>Title</b>
<b>72-47-OR&amp;SA</b>	<b>An Evaluation of Selected Advanced High Production Feeding Systems</b>
<b>72-48-OR&amp;SA</b>	<b>An Analysis of Consumer Responses to Proposed Changes in Army Garrison Feeding System</b>
<b>72-56-OR&amp;SA</b>	<b>A Qualitative Evaluation of the Environment and Modernization Potential of Dining Halls at Fort Lewis, Washington</b>
<b>72-67-OR&amp;SA</b>	<b>A Cost Analysis of Modern High Production Food Service Systems for Military Garrison Applications</b>
<b>72-64-PR</b>	<b>Consumer Reaction to the Fort Lewis CAFe System</b>

The present report deals with a validation of the material presented in the last report listed above by means of follow-up data in the classical test-retest design.

This work was part of Task 03, Project 15662713AJ45, Systems Studies in Military Feeding, and Task 06, Project 1J662713A034, Military Food Service and Subsistence Technology.

The interview data were gathered by the Institutional Education Office of the University of Washington under contract DAAG17-72-M-1382 P0002.

Each military service, Army, Navy, Air Force, and Marine Corps, has its representative at the Natick Laboratories. Inquiries concerning this report, or other matters in the Department of Defense Food RDT&E Program, should be directed to the appropriate Service Representative, as for example:

Navy Representative  
DOD Food Program  
US Army Natick Laboratories  
Natick, Massachusetts 01760

## **ACKNOWLEDGEMENTS**

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## ABSTRACT

A follow-up sample of 642 respondents was interviewed to determine the consumer reactions to the CAFE System at Fort Lewis subsequent to the assumption of responsibility by Fort Lewis personnel and to the passage of time. The data demonstrated essentially the same overall pattern of consumer evaluations (the Specialty Cafe was rated highest, followed by the Short Order Cafe which was not significantly different from the former, followed by the other four facilities which were not significantly different from each other). There was, however, a statistically significant decrease in the hedonic rating of the overall meals during the follow-up period, but the decrease was slight (0.29 of a scale point) and rival hypotheses other than a decrease in the quality of this food service itself are plausible. In summary, the CAFE System was still highly received by the consumers.

Of particular interest was the high degree of consumer acceptance of the automated headcount system developed after the initial evaluation period.

## INTRODUCTION

On 14 August 1971 a new Centralized Army Feeding System (CAFe) was put into experimental operation at Fort Lewis, Washington. The CAFe system consisted of a central food processing plant and scullery which serviced satellite dining halls and specialty food facilities. A complete description of the new CAFe system is contained in the report by Bustead, *et al.*, 1972.

Prior to the implementation of the CAFe system, several studies were conducted. The Pioneering Research Laboratory of the United States Army Natick Laboratories conducted two surveys at Fort Lewis, a Consumer Attitude Survey (Kiess, *et al.*, 1972) and a Food Preference Survey (Meiselman, *et al.*, 1972). The Consumer Attitude Survey attempted to identify what the troops liked and disliked about the existing food service system. The survey indicated a general dissatisfaction with the food service system, with emphasis on deficient quality, variety, and quantity of the food. On the other hand, military consumers expressed a liking for the convenience of the company size dining hall within their living quarter area. These and other considerations led the garrison food service system planners to suggest central food preparation to maintain quality, and service in the traditional company dining hall. The strong preference expressed for more varied types of foods led the planners to suggest specialized eating facilities to supplement the traditional A-ration dining halls.

The Food Preference Survey had two aims—the objective measurement of food likes and dislikes at Fort Lewis, and the development of new techniques for food preference measurement. Almost 700 troops gave ratings to 416 foods, indicating how much they liked each food and how often they wanted to eat each one. The survey results demonstrated customer dissatisfaction with certain classes of menu items, i.e., salads, vegetables, and certain combination main dishes. The customers showed enthusiasm for Italian foods, Mexican foods, and seafoods on both the Food Preference Survey and the Consumer Attitude Survey, and these items became the basis of a menu for a "Specialty Cafe", where customers could eat in the evening hours. The preferences for short order items like hamburgers and chili formed the basis of a menu for a Short Order Cafe, which served these popular items from lunch time until late evening.

A Proposed Changes Questionnaire (Hertweck and Bryne, 1972) was designed by the Operations Research and Systems Analysis Office and administered with the two other surveys. From this questionnaire, measurements of the effect of proposed system changes on attendance in the dining hall were made. Low attendance rates had been one of the factors which originally focused concern on military feeding systems. Did the customers think that changing various aspects of the dining system would increase their attendance? Results indicated that increases in attendance could be expected from improvement in the quality, variety, and quantity of food offered and from the type of service provided, thus confirming the Consumer Attitude Survey.

With this background, and with the knowledge gained from investigation of many existing high volume food service systems, the CAFe system at Fort Lewis was planned and put into operation. The planning, designing, and managing of the system was done in large part by the Operations Research and Systems Analysis Office which coordinated the efforts of other groups at the United States Army Natick Laboratories.

The CAFe system offered the consumer different foods served in a different eating environment (Bustead, *et al.*, 1972). Among the important changes in the new system were the following:

- central preparation of a majority of the food
- increased variety of foods in each company dining hall
- opportunity to eat in short order and specialty facilities
- increased portions and provided second helpings
- self-service in traditional facilities
- ice cream and carbonated beverages
- improved dining hours
- civilian mess attendants

A report by Branch and Meiselman (1972) summarized 2471 personal interviews obtained between 14 August 1971 and 29 October 1971, providing detailed information concerning: (1) the acceptability of the food served in CAFe versus the existing control facilities and (2) what consumers liked and did not like about the traditional food service system and the new CAFe system. These data not only evaluated the Fort Lewis CAFe

system objectively, but also provided guidelines for future food service planners. The customer was given the opportunity to speak his mind on what he liked and disliked about the military food service system. Overall, the customers gave the CAFe food service system a solid endorsement.

The experiment was essentially completed on 30 October 1971, and by January 1972 Fort Lewis assumed complete responsibility and control of the CAFe system with very limited assistance from Natick Laboratories personnel. This report deals with the consumer reactions to the CAFe system during February through June 1972. The objective was to document the longer term impact of changes introduced during the experimental period and to assess the validity of their effects in an operational context. The data indicated a response pattern virtually identical to the previous survey. In rank order, the Specialty Cafe generally received the highest ratings again, followed by the rating of the Short Order Cafe, then by the facility having both a short order line and an A-ration line (#3114), and lastly by the three A-ration facilities. However, the data demonstrated a statistically significant decrease in overall hedonic food ratings, as well as decreases in nearly all other categories. These decreases probably reflected a change in the consumers frame of reference rather than a change in the quality of the food service.

## METHOD

**The Schedule of Collecting the Interviews.** Table 1 presents the schedule of the collection of the interviews, indicating the numbers of interviews obtained monthly from each dining facility at each meal. Interviews occurred between the fifth through tenth of the month or between the twentieth and twenty-fifth in order to obviate any problems concomitant with differential attendance rates during the ten-day period around paydays. A total of 642 interviews were obtained.

**The Interviews.** The same interviewers, procedures, and protocol (see Appendix A) were employed as in the earlier survey (Branch and Meiselman, 1972).

The unstructured item of the questionnaire (item 6) is not summarized in this report because no additional information was found; likewise, the mean hedonic ratings of individual foods were not presented because the number of cases upon which the means were determined was too few.



**TABLE 1**  
**The Schedule of Obtained Interviews During the Follow-Up**

Dining Facility	Type	Dining Period	Feb	Mar	Apr	May	June	Totals Across Months	Totals across months and meals
#3122	A-ration	Breakfast Noon Evening	8 16 16			8 16 16	8 17 15	24 49 47	120
#3224	A-ration	Breakfast Noon Evening	8 16 16		8 16 16		8 16 7	24 48 39	111
#3279	A-ration	Breakfast Noon Evening		8 16 16		8 16 15	8 17 15	24 49 46	119
#3114	A-ration and short order	Breakfast Noon Evening		8 16 16		8 16 16	0 16 16	16 48 48	112
#3218 <sup>a</sup>	Short order	Noon Evening	16 16		16 16		16 16	48 48	96
#3161 <sup>a</sup>	Specialty food	Evening	20		32		32	84	84
Totals across months and facilities:									
									Grand Total
									642

a. These facilities were open after the normal meal periods; to accommodate this, interviews were spaced over the entire time period.

## RESULTS AND DISCUSSION

### Consumer Reaction to the FOOD in the CAFe System As Expressed in Structured Questions

Table 2 presents the mean hedonic rating of the overall meal (question 4, Appendix A) as judged by CAFe consumers for each dining facility during each month of the follow-up evaluation. It is again apparent that the Specialty Cafe (#3161) food was rated higher on the 9-point hedonic scale across all the months than any other facility. The Short Order Cafe (#3218) food was rated the second highest on the 9-point scale. Dining facility #3114 served food which was now rated consistent with the other three A-ration dining facilities. The mean rating across all the months for all CAFe facilities was now just below the scale category "like moderately". Table 2 also presents the original CAFe hedonic ratings (the mean across time and meals) for each facility and the overall mean across facilities for both the original controls and the original CAFe consumers for comparison.

A one-way analysis of variance was performed on the hedonic ratings summed across the various meal periods during the follow-up period for the different facilities to determine more specifically which dining facilities were serving meals more highly accepted by the consumers. The test demonstrated that the meals in some facilities were rated significantly higher than the meals in other facilities ( $F = 7.52$ ,  $d.f. = 5/634$ ,  $p < .001$ ). Subsequent  $t$ -tests demonstrated that the Specialty Cafe and the Short Order Cafe meals were rated significantly higher than the other four dining facilities, but were not significantly different from each other. Furthermore, the ratings of the meals from the three A-ration only facilities and facility #3114 were not significantly different from each other.

A second analysis of variance demonstrated that the hedonic ratings summed across all facilities were significantly lower during the follow-up period than during the original evaluation ( $F = 21.61$ ,  $d.f. = 1/2899$ ,  $p < .001$ ). However, to interpret this statistic other factors must be considered. First, although the difference is statistically significant, the reason for the statistical significance is more probably a function of the denominator of the ratio (the sample size, which is quite large) than of the numerator (the mean difference, which is only 0.29). Second, plausible rival explanations for the decrease

TABLE 2

## Consumers Responses to the Question:

Overall, how would you rate the meal you just ate?

Dining Facility	Type	Dining Period	Feb	Mar	Apr	May	June	Totals Across Months	Totals across months and meals	Original CAFE ratings
#3161	Specialty food	Evening	7.35	7.50	7.50	7.66	7.52	7.52	7.52	7.94
#3218	Short order	Noon Evening	7.25 6.38	7.50 7.62		7.62 7.62	7.46 7.21	7.33	7.33	7.41
#3114	A-ration and short order	Breakfast Noon Evening		7.38 6.75 6.44		6.38 6.62 6.62	— 6.38 7.38	6.88 6.58 6.81	6.73	7.17
#3224	A-ration	Breakfast Noon Evening	7.25 6.50 7.00	6.75 7.06 6.75		8.12 7.06 5.00	7.38 6.88 6.54	6.86	6.86	7.08
#3122	A-ration	Breakfast Noon Evening		7.12 5.44 7.31		7.00 6.25 6.88	7.25 7.24 6.53	7.12 6.33 6.91	6.72	7.07
#3279	A-ration	Breakfast Noon Evening		6.88 6.38 7.06		7.25 5.94 6.33	7.50 6.60 <sup>a</sup> 6.67	7.21 6.30 6.70	6.64	7.08
Totals across time, meals, and facilities:								Original Controls	5.66	7.22

a. Two respondents' ratings were not recorded; hence the number of cases in this instance differs from the number of interviews listed in Table 1. The number of cases for this table was 15.

cannot be ruled out because of the simple design employed. One plausible explanation is that the large percentage of respondents who provided feedback both during the original evaluation period and during the follow-up period may have changed their frame of reference for the scale during the course of over ten months. That is, a food which was rated as seven (liked moderately) during August 1971, might well have been rated as a six (liked slightly) during June 1972, not because the food changed, but because the respondent had come to expect better quality foods in June 1972 than he did in August 1971. Another plausible explanation is that the small percentage of respondents assigned to Fort Lewis subsequent to the installation of the CAFe system, who therefore had no experience with the scale values other than with previous CAFe food, might also have lowered the mean ratings of the follow-up period. But it is possible that the stimuli themselves (the food items) changed a quarter to a third of a point on the hedonic scale.

A third analysis of variance was performed on the hedonic ratings obtained from the three A-ration facilities across the three meal periods, indicating that the consumers' ratings significantly changed as a function of which meal they had just eaten ( $F = 7.43$ ,  $d.f. = 2/345$ ,  $p < .001$ ). Subsequent analyses demonstrated that breakfast was rated significantly higher than both the noon and evening meal ( $p < .01$  and  $p < .001$ , respectively), while the noon and evening meals were not significantly different from each other ( $p > .05$ ).

Table 3 presents the comparison of the overall meal served during the follow-up period to other Army meals as judged by the consumers (question 5, Appendix A). As in Table 2, this information is a general expression of consumer reactions to the food served. Similar to the pattern with the hedonic rating of the overall meal, the Specialty Cafe had the highest percentage of consumers rating the meal as "much better" than the typical Army meal. The Short Order Cafe again had the second highest percentage of consumers rating the meal "much better" with facility #3114 having the third highest percentage in this category. Likewise, the three solely A-ration facilities had their meals rated with high uniformity. This was exactly the same pattern as found during the original evaluation period, but again with decreased percentages in the more favorable categories.

Summary information of ratings across all the months of the test and across all the facilities is presented in Figure 1 for closer inspection along with the ratings of the original

Table 3

## Consumers Responses to the Question:

How did this meal compare to other Army meals you have had?

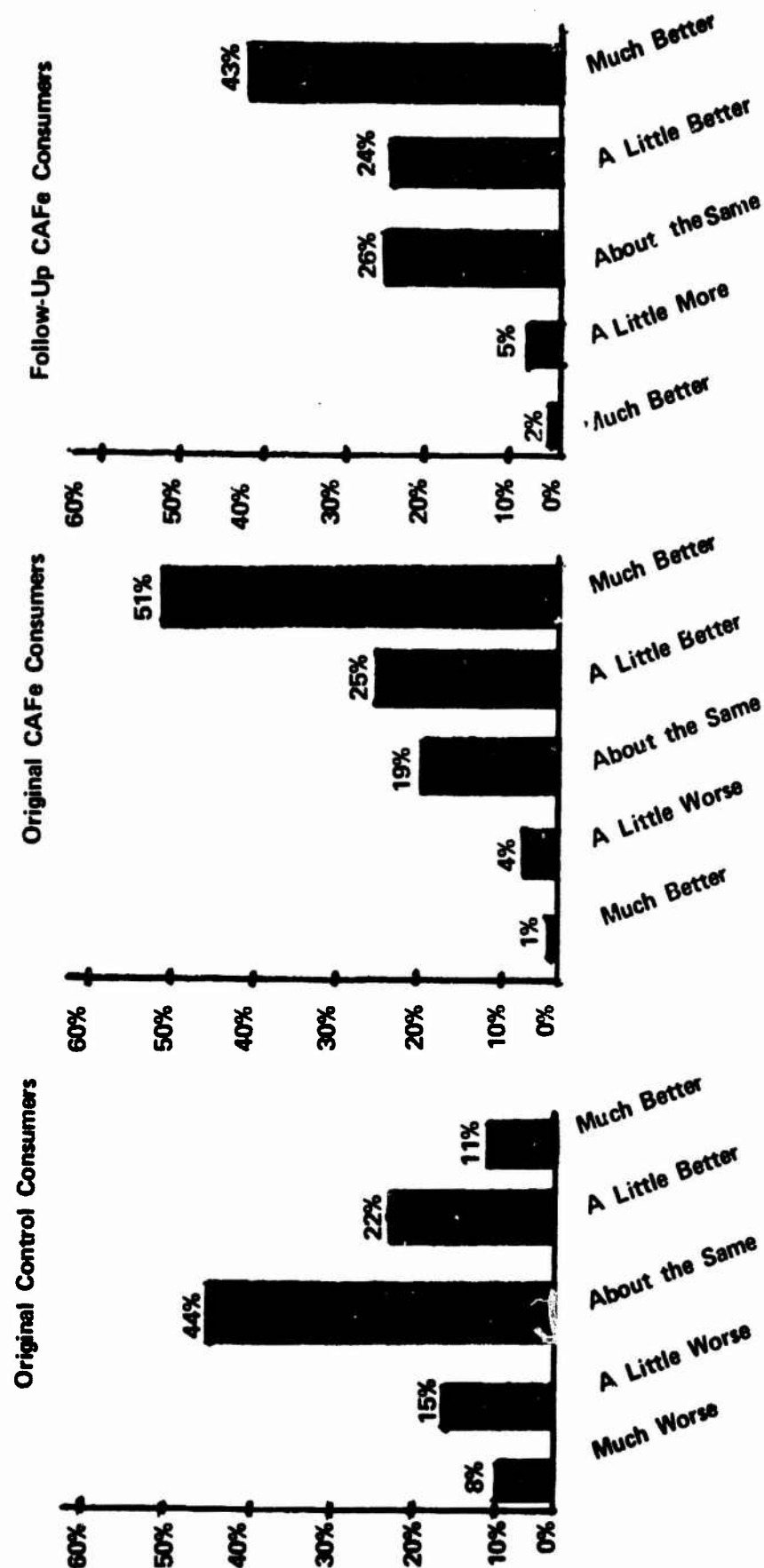
Dining Facility	Type	Response	Feb	Mar	Apr	May	June	Totals Across Months	Original CAFE Ratings
#3122	A-ration	Much Better Little Better Same Little Worse Much Worse		45%(18) 22%(9) 28%(11) 5%(2) 0%(0)		30%(12) 32%(13) 35%(14) 2%(1) 0%(0)	25%(10) 35%(14) 35%(14) 5%(2) 0%(0)	33%(40) 30%(36) 32%(39) 4%(5) 0%(0)	41% 27% 25% 5% 1%
#3224	A-ration	Much Better Little Better Same Little Worse Much Worse	48%(19) 18%(7) 25%(10) 5%(2) 5%(2)		25%(10) 25%(10) 50%(20) 0%(0) 0%(0)		25%(8) 22%(7) 34%(11) 12%(4) 6%(2)	33%(37) 21%(23) 37%(41) 5%(6) 4%(4)	42% 28% 26% 4% 0%
#3279	A-ration	Much Better Little Better Same Little Worse Much Worse		50%(20) 22%(9) 22%(9) 5%(2) 0%(0)		18%(7) 33%(13) 33%(13) 5%(2) 10%(4)	38%(15) 20%(8) 32%(13) 5%(2) 5%(2)	35%(42) 25%(30) 29%(35) 5%(6) 5%(6)	47% 25% 22% 4% 1%
#3114	A-ration and short order	Much Better Little Better Same Little Worse Much Worse		50%(20) 22%(9) 20%(8) 5%(2) 2%(1)		35%(14) 20%(8) 35%(14) 8%(3) 2%(1)	28%(9) 16%(5) 38%(12) 12%(4) 6%(2)	38%(43) 20%(22) 30%(34) 8%(9) 4%(4)	51% 25% 16% 5% 2%
#3218	Short Order	Much Better Little Better Same Little Worse Much Worse	44%(14) 31%(10) 19%(6) 6%(2) 0%(0)		62%(20) 19%(6) 16%(5) 3%(1) 0%(0)		72%(23) 19%(6) 6%(2) 3%(1) 0%(0)	59%(57) 23%(22) 14%(13) 4%(4) 0%(0)	61% 22% 14% 2% 1%
#3161	Specialty Food	Much Better Little Better Same Little Worse Much Worse	55%(11) 35%(7) 10%(2) 0%(0) 0%(0)		78%(25) 16%(5) 6%(2) 0%(0) 0%(0)		72%(23) 22%(7) 6%(2) 0%(0) 0%(0)	70%(59) 23%(19) 7%(6) 0%(0) 0%(0)	78% 15% 7% 0% 0%

NOTE: Numbers in parentheses refer to the number of respondents.

Figure 1

Distribution of Consumers Responses to the Question:

How did this meal compare with other Army meals you have had?



CAFE and control consumers. The distribution of ratings of the control consumers was similar to the normal distribution with a large clustering of responses at the middle and small percentages at the extremes; whereas the distribution of the original CAFE consumer responses was skewed as follows: (1) over half indicated the meal just consumed was much better than other Army meals, (2) over three-quarters indicated it was at least better than other Army meals, and (3) only 5% indicated it was not as good as other Army meals. The distribution of the follow-up CAFE consumer responses was less skewed as follows: (1) over two-fifths indicated the meal just consumed was much better than other Army meals, (2) two-thirds indicated it was at least better than other Army meals, and (3) only 7% indicated it was not as good as other Army meals. In other words, 7-8% had switched from the "much better" category to the "same" category, but still over 67% of the respondents felt the food was better.

A summary of the hedonic values summed across all the foods within a food class is presented in Table 4. Each food class is entered according to the facility in which the food items were served. No information concerning the mean hedonic ratings of individual foods served during the follow-up is presented because the number of cases for each food is not large enough for sufficient confidence in the stability of the means. Table 4 indicated that the short order items were not as well received in the facilities also serving A-ration meals when compared to the Short Order Cafe or the Specialty Cafe, but still were considerably better than the original control ratings. Furthermore, the ratings of noon and evening main dishes suggests that facility #3114, which had excellent ratings during the original evaluation period, had more difficulty than the other facilities retaining high hedonic ratings.

TABLE 4  
The Hedonic Values of Food Classes

	Original Controls	#3122	#3224	#3279	#3114	#3218	#3161
Breakfast: Main Dishes	5.93 (42)	7.05 (38)	7.57 (37)	7.37 (38)	6.64 (22)	—	—
Breakfast: Starches	5.62 (8)	7.86 (14)	7.71 (7)	6.54 (13)	7.25 (4)	—	—
Breakfast: Breads	5.40 (5)	—	6.00 (3)	7.00 (1)	8.00 (2)	—	—
Breakfast: Beverages	6.44 (9)	7.62 (8)	7.33 (9)	7.68 (19)	7.80 (5)	—	—
Fruits	7.48 (31)	7.60 (10)	7.19 (26)	7.32 (25)	7.90 (21)	8.40 (10)	8.12 (17)
Short Order	5.49 (41)	—	6.67 (6)	—	6.78 (36)	7.45 (84)	7.79 (29)
Noon and Evening: Main Dishes	5.50 (137)	6.74 (122)	6.58 (90)	6.41 (96)	6.10 (82)	7.15 (47)	7.19 (140)
Noon and Evening: Soups	5.00 (7)	7.00 (2)	—	3.50 (2)	—	—	—
Noon and Evening: Salads	7.07 (67)	7.62 (50)	7.13 (31)	7.04 (49)	6.57 (30)	8.17 (12)	7.72 (18)
Noon and Evening: Starches	5.63 (136)	6.45 (66)	6.63 (78)	6.30 (61)	6.67 (69)	7.32 (79)	6.94 (31)
Noon and Evening: Vegetables	6.03 (73)	6.23 (65)	6.69 (42)	6.77 (64)	6.92 (37)	—	7.33 (3)

---Continued---



Table 4  
The Hedonic Values of Food Classes (cont'd)

	Original Controls	#3122	#3224	#3279	#3114	#3218	#3161
Noon and Evening: Breads	6.87 (108)	6.91 (55)	6.71 (52)	7.06 (62)	7.67 (51)	7.00 (10)	7.42 (24)
Noon and Evening: Desserts	5.96 (116)	7.22 (36)	7.17 (70)	6.77 (48)	7.11 (44)	7.16 (32)	7.81 (42)
Noon and Evening: Beverages	7.28 (180)	8.30 (110)	8.02 (110)	8.14 (105)	8.26 (103)	8.28 (98)	8.11 (95)

NOTE: The number of cases upon which the mean was determined is presented in parentheses underneath the mean value.

## **Consumer Reaction to the NON-FOOD Features Of The CAFe System Expressed in Structured Questions**

Data is presented in Table 5 concerning the non-food features of the CAFe system. Each consumer was asked to indicate whether he liked, disliked, or was indifferent to some of the changes within the CAFe system. Table 5 presents the consumer responses to 14 of the changes according to dining facility during both the follow-up period and the original evaluation period when available.

Note that the new ID card system of headcounts was well received by the consumers. This new system allowed more accurate attendance records and therefore is more cost-effective for the government, while simultaneously speeding up the consumers' movement into the dining facilities. Its high degree of consumer acceptance was therefore encouraging.

The cold sandwiches provided in the evenings on a limited basis did not receive a very high consumer endorsement. Researchers and consumers alike agreed that the concept might well have merit, but the specific product offered at Fort Lewis was qualitatively deficient.

The consumer reactions to music in the Specialty Cafe and the Short Order Cafe has waned a little bit, but it was still favorable received in general.

Table 6 summarizes the consumers overall reactions to the CAFe system, both during the original evaluation period and during the follow-up. High consumer acceptance of the CAFe system was maintained between the original and the follow-up time period.

**TABLE 5**  
**Consumer Reactions to 14 Non-Food Changes Implemented by the CAFe System**

The Change	Dining Facility	---Follow-Up Responses---			---Original Responses---			
		No Experience	Like	Indif-ferent	Dislike	Like	Indif-ferent	No Re-sponse
New ID Card System of Head counts	#3122	10%	94%	3%	3%	a	—	—
	#3224	8%	79%	15%	6%	—	—	—
	#3279	14%	85%	14%	1%	—	—	—
	#3114	8%	97%	2%	1%	—	—	—
	#3218	7%	82%	8%	10%	—	—	—
	#3161	6%	86%	10%	4%	—	—	—
Continental Breakfast	#3122	96%	100%	0%	0%	b	—	—
	#3224	77%	85%	4%	12%	—	—	—
	#3279	88%	86%	7%	7%	—	—	—
	#3114	77%	81%	12%	8%	75%	18%	2%
	#3218	91%	100%	0%	0%	—	—	—
	#3161	90%	75%	25%	0%	—	—	—
Civilian Mess Attendants	#3122	2%	97%	3%	0%	95%	3%	2%
	#3224	1%	95%	5%	0%	93%	4%	2%
	#3279	3%	93%	6%	1%	92%	3%	3%
	#3114	1%	96%	3%	1%	95%	3%	2%
	#3218	0%	95%	5%	0%	92%	6%	1%
	#3161	2%	94%	5%	1%	97%	2%	0%
Specialty Cafe to Serve Mexican, Italian, and Seafoods	#3122	11%	92%	1%	7%	90%	4%	2%
	#3224	21%	83%	6%	11%	83%	3%	10%
	#3279	32%	83%	4%	14%	82%	6%	8%
	#3114	31%	87%	4%	9%	89%	4%	5%
	#3218	28%	80%	7%	13%	84%	11%	3%
	#3161 <sup>c</sup>	0%	92%	0%	8%	97%	1%	1%

---Continued---

**TABLE 5**  
**Consumer Reactions to 14 Non-Food Changes Implemented by the CAFe System (cont'd)**

The Change	Dining Facility	---Follow-Up Responses---			---Original Responses---			No Response
		No Experience	Like	Indifferent	Dislike	Like	Indifferent	
Separate Short Order Cafe	#3122	23%	91%	5%	3%	85%	7%	2%
	#3224	4%	85%	6%	9%	90%	4%	3%
	#3279	18%	79%	5%	15%	91%	4%	3%
	#3114	48%	95%	3%	2%	82%	7%	7%
	#3218 <sup>d</sup>	0%	93%	4%	4%	95%	3%	1%
Unlimited Second Helpings	#3161	19%	76%	16%	7%	91%	5%	0%
	#3122	26%	84%	12%	3%	91%	5%	2%
	#3224	24%	88%	8%	4%	84%	9%	3%
	#3279	21%	85%	13%	2%	87%	6%	4%
	#3114	31%	87%	13%	0%	89%	8%	2%
Self Service	#3218	12%	88%	11%	1%	92%	5%	1%
	#3161	14%	83%	15%	1%	95%	4%	0%
	#3122	5%	94%	4%	2%	e	—	—
	#3224	1%	91%	7%	2%	—	—	—
	#3279	3%	93%	4%	3%	—	—	—
Cold Sandwiches in the Evenings	#3114	0%	96%	4%	0%	—	—	—
	#3218	1%	98%	2%	0%	—	—	—
	#3161	2%	96%	4%	0%	—	—	—
	#3279	52%	50%	12%	38%	a	—	—
	#3114	67%	40%	4%	55%	—	—	—
Use of Plastic Trays	#3279	4%	58%	16%	26%	59%	20%	3%
	#3114	4%	66%	25%	9%	64%	20%	1%
	#3218	2%	56%	30%	14%	64%	20%	1%
Use of China Dishes	#3161	0%	79%	14%	7%	72%	17%	0%
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---Continued---

**TABLE 5**  
**Consumer Reactions to 14 Non-Food Changes Implemented by the CAFe System (cont'd)**

The Change	Dining Facility	---Follow-Up Responses---			---Original Responses---			
		No Experience	Like	Indifferent	Like	Indifferent	Dislike	No Responses
Extended Hours of Operation	#3218	0%	95%	3%	2%	4%	2%	1%
	#3161	0%	79%	14%	7%	2%	2%	0%
Jukebox	#3218	0%	83%	11%	5%	4%	3%	1%
	#3161	4%	84%	7%	9%	5%	2%	0%
New Uniforms for Mess personnel	#3218	0%	52%	43%	5%	34%	4%	2%
	#3161	0%	64%	33%	2%	35%	4%	0%
Short Order Line in Regular Facility	#3114	5%	96%	3%	1%	8%	6%	2%

**NOTE:** The original responses reflect only those who had experience with the particular implemented change. Also, rounding differences account for any discrepancies from a sum of 100%.

- a. This change was not implemented during the August - October interviewing period.
- b. This change was only implemented by facility #3114 during the August - October period.
- c. One interviewer assumed that the consumers eating in the Specialty CAFe liked the facility and hence did not have them respond to this item. The number of cases upon which these percentages are based is therefore 60, not the total of 84 as listed in Table 1.
- d. The same interviewer likewise assumed that the consumers rating in the Short Order Cafe liked the facility and hence did not have them respond to this item. The number of cases upon which these percentages are based is 81, not the total of 96 as listed in Table 1.
- e. This change was not specifically included in the August - October questionnaire.

**TABLE 6**  
**Consumers Responses to the Question:**  
**Overall, do you like dislike, or are you indifferent to this new CAFe system?**

Dining Facility	Type	Response	Feb	Mar	Apr	May	June	Totals Across Months	Original Ratings
#3122	A--ration	Like Indifferent Dislike		95%(38) 5%(2) 0%(0)		95%(38) 5%(2) 0%(0)	95%(38) 2%(1) 2%(1)	95%(114) 4%(5) 1%(1)	92% 7% 1%
#3224	A--ration	Like Indifferent Dislike	92%(37) 5%(2) 2%(1)		95%(38) 5%(2) 0%(0)		94%(29) 6%(2) 0%(0)	94%(104) 5%(6) 1%(1)	93% 6% 1%
#3279	A--ration	Like Indifferent Dislike		98%(39) 0%(0) 2%(1)		92%(36) 8%(3) 0%(0)	90%(36) 10%(4) 0%(0)	93%(111) 6%(7) 1%(1)	89% 7% 2% *
#3114	A--ration and short order	Like Indifferent Dislike		98%(39) 2%(1) 0%(0)		92%(37) 2%(1) 5%(2)	97%(31) 0%(0) 3%(1)	96%(107) 2%(2) 3%(3)	94% 5% 1%
#3218	Short order	Like Indifferent Dislike	97%(31) 0%(0) 3%(1)		100%(32) 0%(0) 0%(0)		100%(32) 0%(0) 0%(0)	99%(95) 0%(0) 1%(1)	97% 2% 1%
#3161	Specialty food	Like Indifferent Dislike	95%(19) 5%(1) 0%(0)		91%(29) 9%(3) 0%(0)		94%(30) 3%(1) 3%(1)	93%(78) 6%(5) 1%(1)	98% 2% 0%

\*An additional 2% of the consumers did not respond to this item.

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# APPENDIX A

ID # \_\_\_\_\_

UNIVERSITY OF WASHINGTON

Office of Institutional Educational Research

Date \_\_\_\_\_ Mess Hall \_\_\_\_\_ Meal (Circle) Br Lunch Supper

1. I am going to read a list of some of the changes which have been made or could be made in the eating system here. For each, will you tell me if you have had experience with it, and if you like or dislike it?

		Experience?		Like	Dis-Like	No Difference
		Yes	No			
All Mess Halls	a. New ID card system of head counts	_____	_____	_____	_____	_____
	b. Continental breakfast (rolls and coffee) served after regular hours	_____	_____	_____	_____	_____
	c. Civilian mess attendants	_____	_____	_____	_____	_____
	d. Specialty house to serve Mexican, Italian, and seafoods	_____	_____	_____	_____	_____
	e. Separate short-order house	_____	_____	_____	_____	_____
	f. Unlimited second helpings	_____	_____	_____	_____	_____
	g. Self-service	_____	_____	_____	_____	_____
3114	h. Cold sandwiches in the evenings	_____	_____	_____	_____	_____
	i. Use of plastic trays	_____	_____	_____	_____	_____
	j. Short-order line in the regular mess facility	_____	_____	_____	_____	_____
Spec House	k. Extended hours of operation	_____	_____	_____	_____	_____
	l. Jukebox (music)	_____	_____	_____	_____	_____
	m. Use of china dishes	_____	_____	_____	_____	_____
	n. New uniforms for mess personnel	_____	_____	_____	_____	_____
Short Order	o. Extended hours of operation	_____	_____	_____	_____	_____
	p. Jukebox (music)	_____	_____	_____	_____	_____
	q. Use of plastic trays	_____	_____	_____	_____	_____
	r. New uniforms for mess personnel	_____	_____	_____	_____	_____
3279	s. Cold sandwiches in the evenings	_____	_____	_____	_____	_____
	t. Use of plastic trays	_____	_____	_____	_____	_____



2. Overall, do you like, dislike, or are you indifferent to this new cafe system?

\_\_\_\_\_ Like \_\_\_\_\_ Dislike \_\_\_\_\_ Indifferent

3. Now I am going to ask you to rate the food you just ate. For each food, will you tell me if you like it extremely, liked it very much, liked it moderately, liked it slightly, neither liked nor disliked it, disliked it slightly, disliked it moderately, disliked it very much, or disliked it extremely. This card has a list of these ratings. (Interviewer circle number.) (For breakfast, ask only for main dishes, beverages, breads and cereals, and fruits.)

a. What main dish? 1 2 3 4 5 6 7 8 9

\_\_\_\_\_

b. Any other main dish? 1 2 3 4 5 6 7 8 9

\_\_\_\_\_

c. Vegetable(s)? 1 2 3 4 5 6 7 8 9

\_\_\_\_\_

\_\_\_\_\_

d. Drink(s)? 1 2 3 4 5 6 7 8 9

\_\_\_\_\_

\_\_\_\_\_

e. Breads or cereals? 1 2 3 4 5 6 7 8 9

\_\_\_\_\_

\_\_\_\_\_

f. Potatoes or starches? 1 2 3 4 5 6 7 8 9

\_\_\_\_\_

\_\_\_\_\_

g. Salads? 1 2 3 4 5 6 7 8 9

\_\_\_\_\_

h. Soup? 1 2 3 4 5 6 7 8 9

\_\_\_\_\_

i. Desserts? 1 2 3 4 5 6 7 8 9

\_\_\_\_\_

4. Overall, how would you rate the meal you just ate, using the same scale? (Circle).

1      2      3      4      5      6      7      8      9

5. How did this meal compare with other Army meals you have had?

\_\_\_\_\_ Much better?      \_\_\_\_\_ About the same?      \_\_\_\_\_ A little worse?

\_\_\_\_\_ A little better?      \_\_\_\_\_      \_\_\_\_\_ Much worse?

6. Are there any other comments you would like to make about this mess hall?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Respondent's Name \_\_\_\_\_ Number \_\_\_\_\_

Interviewer \_\_\_\_\_